

In the Claims:

Please amend claim 17; cancel claims 1-16, 20 and 24-50; and add new claims 51-63. The status of all claims is as follows:

1-16. (Canceled)

17. (Currently Amended) A passive direct organic fuel cell comprising:
an anode;

an anode enclosure communicating with said anode and containing an organic fuel solution that is at least 1.8 M formic acid, said anode enclosure having a gas remover comprising a plurality of passages that are configured to allow passage of CO₂ from said enclosure while substantially preventing passage of said organic fuel solution, said plurality of passages positioned to promote circulation of said organic fuel solution as gas travels therethrough;

a cathode communicating with an oxygen source;

a solid polymer electrolyte sandwiched between said anode and said cathode that is substantially impervious to said organic fuel solution; and,

wherein said anode, said cathode, and said electrolyte are operative to generate power having a power density of at least 10 mW/cm² when operating at room temperature.

18. (Original) A passive direct organic fuel cell as defined by claim 17 wherein said fuel solution is at least 4.4 M formic acid and said power density is at least 14 mW/cm².

19. (Original) A passive direct organic fuel cell as defined by claim 17 wherein said fuel solution is at least 8.8 M, and wherein said anode, said cathode, and said electrolyte are operative to generate a power density of at least 10 mW/cm² at a constant

voltage of 0.26 V when operating at room temperature for a period of at least 3 hours with no more than 0.6 cc of said fuel solution.

20. (Canceled)

21. (Original) A passive direct organic fuel cell as defined by claim 17 wherein said anode enclosure, said anode and said electrolyte are held together by a polymer sealant that is resistive to formic acid.

22. (Original) A passive direct organic fuel cell as defined by claim 17 wherein said anode enclosure includes a fill passage for connection to a replaceable fuel cartridge.

23. (Original) A passive direct organic fuel cell as defined by claim 17 and further including a replaceable fuel cartridge made of a PTFE and containing a liquid organic fuel solution, said replaceable fuel cartridge having a recessed valve.

24–50. (Canceled)

51. (New) A passive direct organic fuel cell as defined by claim 17 wherein said plurality of passages comprise at least 5 passages.

52. (New) A passive direct organic fuel cell as defined by claim 17 wherein said anode enclosure includes a plurality of walls, and wherein each of said plurality of passages have an entrance extending inward into said anode enclosure that is separated from said at least one anode enclosure wall.

53. (New) A passive direct organic fuel cell as defined by claim 52 wherein said entrance is separated from said wall by a distance of at least about 0.01 inch.

54. (New) A passive direct organic fuel cell as defined by claim 17 wherein said plurality of passages have a length to diameter ratio of at least about 0.5 and have a hydrophobic interior surface.

55. (New) A passive direct organic fuel cell as defined by claim 17 wherein said plurality of passages are provided in a ratio of about 20 passages per cm² of useful anode surface area.

56. (New) A passive direct organic fuel cell as defined by claim 55 wherein each of said plurality of passages has a diameter of no more than about 1/32".

57. (New) A passive direct organic fuel cell as defined by claim 17 wherein said anode enclosure is defined by a plurality of walls, and wherein at least a first of said plurality of passages is in a first of said plurality of walls and at least a second of said plurality of passages is in a second of said plurality of walls.

58. (New) An organic fuel cell comprising:

an anode;

an anode enclosure defined by a plurality of walls and containing a formic acid organic fuel solution of at least about 1.8 molar concentration, said anode enclosure having a gas remover configured to promote circulation of said organic fuel solution as gas travels therethrough, said gas remover comprising at least 5 passages penetrating at least one of said plurality of walls;

a cathode communicating with an oxygen source; and,

a solid polymer electrolyte sandwiched between said anode and said cathode.

59. (New) An organic fuel cell as defined by claim 58 wherein each of said at least 5 passages have an entrance that is separated by at least about 0.01 inch from said at

a least one of said anode enclosure walls whereby said entrances extend into said enclosure.

60. (New) An organic fuel cell as defined by claim 58 wherein said at least 5 passages have a length to diameter ratio of at least about 0.5, have a hydrophobic interior surface, and a diameter of no more than about 1/32".

61. (New) An organic fuel cell as defined by claim 58 wherein said at least 5 passages penetrate a single wall that is adjacent to said anode.

62. (New) An organic fuel cell comprising:
an anode;

an anode enclosure defined by a plurality of walls and containing a formic acid organic fuel solution having a concentration of at least about 1.8 molar formic acid, said anode enclosure having a gas remover configured to promote circulation of said organic fuel solution, said gas remover comprising at least 5 passages penetrating at least one of said plurality of walls, each of said passages having an entrance that is separated from said at least one wall by a distance whereby said entrance extends into said anode enclosure;

a cathode communicating with an oxygen source; and,

a solid polymer electrolyte sandwiched between said anode and said cathode.

63. (New) An organic fuel cell as defined by claim 62 wherein each of said at least 5 passages have a diameter of no more than about 1/32", and at least a portion of said at least 5 passages are in an anode enclosure wall that is adjacent to said anode.